

Appl. No.: (not yet assigned)

(U.S. National Stage of PCT/JP2003/011012)

Preliminary Amdt. Dated February 25, 2005

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in this application.

1. (Currently Amended) An optical modulator comprising
a substrate ~~consisting~~ comprised of a material having an electro-optic effect,
an optical waveguide formed on said substrate, and
a modulating electrode for allowing an electric field to work on said optical waveguide,
and changing ~~the~~ a phase of light passing through said optical waveguide, wherein stray light
rejection means are provided on ~~the~~ a surface of said substrate.
2. (Original) The optical modulator according to claim 1, wherein said stray light
rejection means comprises a stray light rejection groove, at least one part of which is formed
adjacent to said optical waveguide.
3. (Currently Amended) The optical modulator according to claim 2, wherein ~~the~~ a
distance between said stray light rejection groove and said optical waveguide is 10 to 100 μm at
closest.
4. (Currently Amended) The optical modulator according to ~~any of claims 2 and 3~~
claim 2, wherein ~~the~~ depth of said stray light rejection groove is almost the same as or is more
than ~~that~~ depth of said optical waveguide.

5. (Currently Amended) The optical modulator according to ~~any of claims 2 to 4~~ claim 2, wherein said stray light rejection groove is filled with a light ~~absorber~~ absorbing material.

6. (Currently Amended) The optical modulator according to ~~any of claims 1 to 5~~ claim 1, wherein said optical waveguide comprises a branching optical waveguide, and at least one part of said stray light rejection means is provided adjacent to said branching optical waveguide.

7. (Currently Amended) The optical modulator according to ~~any of claims 1 to 5~~ claim 1, wherein at least one part of said stray light rejection means is provided between the optical waveguide upon which ~~that~~ the electric field of the modulating electrode works ~~on~~ and ~~the~~ a side face of the substrate that is close to said optical waveguide.

8. (Currently Amended) An optical modulator comprising
a substrate ~~consisting~~ comprised of a material having an electro-optic effect,
an optical waveguide formed on said substrate, and
a modulating electrode for allowing an electric field to work on said optical waveguide,
and changing ~~the~~ a phase of light passing through said optical waveguide, wherein
a low refractive index area with ~~the~~ a refractive index lower than that of said substrate is
provided at one portion of ~~the~~ adjacent spaces comprising at least ~~the~~ a lower portion and ~~the~~ a
side portion of said optical waveguide in order to prevent a stray light from entering the optical
waveguide.

9. (Currently Amended) The optical modulator according to claim 8, wherein
said low refractive index area has a thickness ~~longer~~ greater than ~~the~~ a depth of said
optical waveguide in ~~the~~ a thickness direction of the substrate from ~~the~~ a surface of said
substrate, and

~~the~~ a refractive index between ~~the~~ a deepest part of said low refractive index area and ~~the~~ a reverse face of said substrate is higher than ~~that~~ the refractive index of said low refractive index area.

10. (Currently Amended) The optical modulator according to ~~any of claims 8 and 9~~ claim 8, wherein said low refractive index area is formed by diffusion of a low refractive index material ~~with the~~ having a refractive index lower than that of said substrate, over said substrate.

11. (Currently Amended) The optical modulator according to ~~any of claims 8 to 10~~ claim 10, wherein said low refractive index area comprises MgO or ZnO as the low refractive index material.

12. (Currently Amended) An optical modulator comprising
a substrate ~~consisting~~ comprised of a material having an electro-optic effect,
an optical waveguide formed on said substrate, and
a modulating electrode for allowing an electric field to work on said optical waveguide,
and changing ~~the~~ a phase of light passing through said optical waveguide, wherein
a high refractive index area with ~~the~~ a refractive index higher than ~~that~~ a refractive index
of said substrate is provided at ~~the~~ a reverse face or a side face of said substrate.

13. (Currently Amended) The optical modulator according to ~~any of claims 1 to 12~~ claim 1, wherein antireflection treatment is given on ~~the~~ a reverse face or a side face of said substrate.

14. (Currently Amended) The optical modulator according to ~~any of claims 1 to 13~~ claim 1, wherein the frequency of modulation drive is more than 40GHz.

15. (Currently Amended) The optical modulator according to ~~any of claims 1 to 14~~ claim 1, wherein ~~the~~ input power of ~~the~~ light ~~that is inputted~~ input into said optical modulator is more than 10mW.

16. (New) The optical modulator according to claim 3, wherein depth of said stray light rejection groove is almost the same as or is more than depth of said optical waveguide.

17. (New) The optical modulator according to claim 3, wherein said stray light rejection groove is filled with a light absorbing material.

18. (New) The optical modulator according to claim 8, wherein antireflection treatment is given on a reverse face or a side face of said substrate.

19. (New) The optical modulator according to claim 8, wherein the frequency of modulation drive is more than 40GHz.

20. (New) The optical modulator according to claim 8, wherein input power of light input into said optical modulator is more than 10mW.